

SYSTEMS AND METHODS OF ALTERING A VERY SMALL SURFACE AREA

Abstract

Very small scale altering of features of an existing pattern, such as of an IC or photomask can be edited wherein a chemical reactant and/or activating energy is localized to the site of the target feature. In this manner, the alteration can be contained in a highly localized area such that other portions of the pattern remain substantially unaffected. The activating energy may be delivered by far-field and/or near field techniques. In one embodiment, the energy is converted into thermal energy at the site by interaction with the apex of a probe where the apex is proximate to the site. In another embodiment, the energy is converted to a plasma by spaced electrodes at the apex of the probe in combination with activating energy of at least two specifically selected wavelengths. The method can be applied to the repair and/or metrology of very small features of densely patterned substrates, e.g., an integrated circuit, package, photomask, etc.